WHAT IS CLAIMED IS:

1. A thermal bubble type micro inertial sensor, comprising:

a substrate;

a heater arranged on the substrate;

at least two temperature sensing members symmetrical arranged at opposite sides of the heater and on the substrate, respectively, to sense a temperature difference beside the heater;

a cap arranged above the substrate to cover and encapsulate the heater and the at least two temperature sensing members; and

a liquid filled into a chamber formed between the cap and the substrate.

2. The micro inertial sensor according to claim 1, wherein the substrate is a silicon substrate.

3. The micro inertial sensor according to claim 1, wherein a material of the heater is selected from one of the group consisting of a metal material, polysilicon and silicon.

4. The micro inertial sensor according to claim 1, wherein a material of each of the at least two temperature sensing members is selected from one of the group consisting of a metal material, polysilicon and silicon.

5. The micro inertial sensor according to claim 3, wherein the metal material is selected from one of platinum and tungsten.

6. The micro inertial sensor according to claim 4, wherein the metal material

is selected from one of platinum and tungsten.

7. The micro inertial sensor according to claim 1, wherein the liquid is water.

8. The micro inertial sensor according to claim 1, wherein when the heater is heated till its temperature reaches the vaporization point of the liquid, a thermal bubble is gradually formed around the heater due to phase transition from liquid to gas.

9. The micro inertial sensor according to claim 1, wherein the substrate is formed with a groove so that the heater and the at least two temperature sensing members are suspended above the groove of the substrate.

10. The micro inertial sensor according to claim 9, wherein the heater is composed of a suspended membrane and a plurality of symmetrical, bridge beams extending outwardly from four corners of the suspended membrane in directions parallel to the suspended membrane, and the heater is supported by the bridge beams and suspended above the substrate.

11. The micro inertial sensor according to claim 9, wherein the groove is formed by way of anisotropic etching.

12. The micro inertial sensor according to claim 10, wherein each of the at least two temperature sensing members is supported by at least one of the bridge beams and suspended above the substrate.

13. The micro inertial sensor according to claim 1, wherein each of the at least two temperature sensing members is a thermister.

14. The micro inertial sensor according to claim 9, wherein each of the at least two temperature sensing members is a thermocouple.

15. The micro inertial sensor according to claim 9, wherein each of the at least two temperature sensing members is a thermopile having multiple thermocouples connected in series.

16. The micro inertial sensor according to claim 14, wherein the thermocouple has a first end connected to the heater and suspended above the groove of the substrate, and a second end connected to the substrate.

17. The micro inertial sensor according to claim 15, wherein the thermopile has a first end connected to the heater and suspended above the groove of the substrate, and a second end connected to the substrate.

18. The micro inertial sensor according to claim 14, wherein the thermocouple comprises a first thermoelectric member and a second thermoelectric member.

19. The micro inertial sensor according to claim 18, wherein the first thermoelectric member is made of polysilicon or silicon, and the second thermoelectric member is an interconnect metal layer.

20. The micro inertial sensor according to claim 1 being applied to a micro-accelerometer.

21. The micro inertial sensor according to claim 1 being applied to an inclinometer.